Information Technology Equipment Life Cycle
February 22, 2007

Public Act 345 of 2006 Sec. 579*:*

The Department of Information Technology shall provide a report that analyzes and makes recommendations on the life-cycle of information technology hardware and software. The report shall be submitted to the senate and house of representatives standing committees on appropriations subcommittees on general government and the senate and house fiscal agencies by March 1.

Definitions

Life cycle: The period of time during which information technology hardware and software remains useful to the state.

Refresh rate: The planned rate of replacement for information technology hardware and software.

Background

Industry Lifecycle Practices

- PC hardware: 40% of companies are on a 4-year cycle, 30% are on a 3-year cycle, and 30% are on other (longer) cycles. Experts favor a four-year cycle. Longer cycles may leave hardware out of warranty and unsupported, sub-optimize worker productivity, or present budget problems (e.g. when external events create a need for wider change).

- PC software (operating systems and utilities): Upgrade operating systems strategically, i.e., based on advantages/risks presented by the upgrade, not with every new Windows operating system (OS) release.

- Number of vendors (Dell, HP, Apple, etc.) supporting the organization: Typically, one vendor for each segment of a computer fleet; e.g., Dell for desktops. This practice provides vendors with pricing incentives.

- Federal Office of Management and Budget (OMB) has indicated that they do not have an official refresh or life-cycle policy, but they do have a goal of a three year refresh schedule for desktop replacement.

- The Governmental Accounting Office (GAO) stated that they do not have an official position, but the common federal practice that they have observed informally among agencies is a three-year replacement goal.

Security Issues

Six major security issues support shorter life cycle replacement times for desktop personal computers:

1. Outdated hardware systems are vulnerable to attacks at sign-on.

2. Older systems don't have adequate locking and password functions.

3. Security fixes and vulnerability patches are often no longer available for older systems.

4. Older operating systems often don't contain the necessary tools to identify and remedy system compromises.

5. The risk of system compromise via Instant Messaging attacks is greater with outdated equipment.

6. The overall security risk for older systems is increased due to a lack of available technical support and defensive measures.

State Lifecycle - Current Status 2006

- Operating systems on state workstations range from Windows 95 to Windows XP.
- Most desktop workstations are purchased with four year on-site warranty.
- It is not uncommon for desktop workstations and printers to be used for five years or longer.
- 44% of the desktop workstations are at end-of-life.
- Two common reasons for desktop equipment to be replaced are because the software necessary to operate new applications will not perform on older equipment, or the vendor no longer supports the software on the desktop equipment.

Lifecycle Recommendations

Leverage Existing Equipment

To leverage existing equipment, the state will establish standards for usage and lifecycle, based on the following user categories:

Single-task User: A user whose job typically requires access to one application, with few other computing needs.

Task-oriented User: A user whose job typically has a well-defined and limited set of tasks, but is likely to use email and office productivity tools regularly.

Knowledge Worker: A user whose job typically requires the use of multiple applications at the same time, but does not use processor intensive applications.

Specialized Worker: A user who needs a high-end workstation that will perform functions specific to their duties, such as computer-aided design (CAD), or software development tools.

Recommended PC Refresh Rates

- The recommended use per model is four (4) years (based on analysis of industry and government practices).
- The recommended on-site warranty period is four (4) years (keeps machines under warranty during useful life).

- The recommended time period for removal of desktop equipment from service is five (5) years (parts/patches no longer available).

- An exception process to the guidelines will be established by DIT.

- DIT will review the refresh rate recommendation every year based on budget conditions and other impacting issues.

- DIT will investigate new technologies and make recommendations as the technology becomes available.

Desktop Salvage Process

The Gartner Group reports indicate that PCs currently being deployed are sufficient for mainstream users for four years. However, as workstations age they can be transferred to workers needing less computer capability.

- Usable desktop equipment is returned to the DIT Depot Operation to be reissued to other state agencies as needed.

- Through the state's Michigan Master Computing Contract (MMCC), out of warranty desktops are traded in on a one-for-one basis with the vendor through its asset recovery program.

- Obsolete equipment is being properly salvaged through a contract with a Michigan electronics recycling company.

Recommended Average Server Refresh Rates

Most hardware vendors commit to five years of parts availability for servers. Most servers have no "book" value three years after date of purchase. However, pursuing a server replacement based on a depreciation schedule can cause tremendous churn depending on the number of servers being used in the enterprise. It may cause staff to be so consumed with server replacement projects that administrative productivity suffers. To avoid these problems server refresh should be coordinated with an operating system life cycle.

- Most hardware vendors commit to five years of parts availability for servers; therefore, five years is the reasonable upper limit for the life of a deployed server.

- Minimize the impact of an infrastructure change by upgrading in small groups rather than enterprise-at-once.

Recommended Software Replacement

Software life cycle is predicated on the type of software and the hardware platform being used. Any one of the following factors may require the replacement or updating of software:

- Hardware equipment changes

- Operating system changes

- User needs
- Manufacture updating and terminating support for older versions

It is best to minimize the percentage of end users affected by an infrastructure change by planning upgrades in small groups rather than attempting to change the enterprise at one time. At a minimum, operating system software upgrades should be timed to coincide with normal hardware refreshes or when applications/middleware are undergoing a major upgrade. In designing the migration strategy, it must be taken into consideration that software vendors may drop support for their software at a different schedule than the operating system vendor. It is a best practice to spread the cost of upgrade over a series of years. Forrester Research indicates almost three-quarters of corporate PCs are running Windows XP, and getting to a single, stable operating system that meets end user requirements is still going to be the preferred strategy before starting a new OS migration project to Windows Vista. The State's Michigan/1 ADOPT project is moving the State's pc's to a standard Windows XP operating system environment.